

BEAM-SPLITTER OPTICS DESIGN THAT MAINTAINS AN UNFLIPPED
(UNMIRRORED) IMAGE FOR A CATADIOPTRIC LITHOGRAPHIC
SYSTEM

ABSTRACT OF THE DISCLOSURE

The present invention is a catadioptric system having a reticle optical group, a beam splitter, an aspheric mirror, a baffle plate, a folding mirror and a semiconductor wafer optical group. The reticle optical group, the beam splitter and the semiconductor wafer optical group are placed on the same beam axis, different from aspheric mirror and folding mirror axis. The light passes through an image pattern on the reticle and is reflected by the beam splitter onto the aspheric mirror. The aspheric mirror reflects the light back through the beam splitter onto the folding mirror. The folding mirror reflects the light back to the beam splitter. The beam splitter reflects the light onto the semiconductor wafer optical group. A plurality of quarter wave plates can be placed in optical paths between optical elements of the present invention to change polarization of an incoming light. Before light passes through the semiconductor wafer optical group, it passes through the baffle plate, which prevents any background scattered light caused by internal reflections within the beam splitter from entering the semiconductor wafer optical group. In another embodiment, a spacer plate is inserted into the beam splitter. The spacer plate creates an offset between reticle optical group beam axis and semiconductor wafer optical group beam axis. This reduces direct passage of light from reticle optical group to semiconductor wafer optical group.

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